

CLAIMS

1. A protein comprising the amino acid sequence of SEQ ID NO: 2, or a protein comprising the amino acid sequence of SEQ ID NO: 2 in which one or more amino acids are replaced, deleted, added, and/or inserted, and being functionally equivalent to the protein comprising the amino acid sequence of SEQ ID NO: 2.
2. The protein of claim 1, wherein the protein comprises an amino acid sequence that has not less than 90% homology to the amino acid sequence of SEQ ID NO: 2.
3. The protein of claim 1, wherein the protein comprises the amino acid sequence of SEQ ID NO: 2.
4. A DNA encoding the protein of claim 1.
5. The DNA of claim 4, wherein the DNA comprises a nucleotide sequence that has not less than 85% homology to the nucleotide sequence of SEQ ID NO: 1.
6. The DNA of claim 5, wherein the DNA comprises a protein coding region in the nucleotide sequence of SEQ ID NO: 1.
7. A DNA encoding the protein of claim 1, the DNA hybridizing under stringent conditions with DNA comprising a nucleotide sequence of SEQ ID NO: 1.
8. A DNA hybridizing specifically with a DNA comprising the nucleotide sequence of SEQ ID NO: 1 or with the complementary strand thereof, the DNA having a chain length of at least 15 nucleotides.
9. An antisense DNA against the DNA of claim 6 or a portion thereof.
10. A vector comprising the DNA of any one of claim 4, 5, 6, and 7.
11. A transformant expressively carrying the DNA of any one of claim 4, 5, 6, and 7.
12. A method for producing the protein of claim 1, the method comprising culturing the transformant of claim 11 and collecting an expression product of the DNA of any one of claim 4, 5, 6, and 7.
13. An antibody binding to the protein of claim 1.
14. The antibody of claim 13, wherein the antibody recognizes a protein comprising an amino acid sequence selected from the amino acid sequence of SEQ ID NO: 2.
15. The antibody of claim 14, wherein the antibody is a monoclonal

antibody.

16. An immunoassay method for measuring the protein of claim 3 or a fragment thereof based on immunological binding of the antibody of claim 14 or 15 to the protein of claim 2 or a fragment thereof.
- 5 17. A reagent for an immunoassay for the protein of claim 3 or a fragment thereof, the reagent comprising the antibody of claim 14 or 15.
18. A method for detecting mesangial proliferative nephropathy, the method comprising measuring the protein of claim 3 or a fragment thereof contained in a biological sample and comparing the measured
- 10 value with that obtained from a normal sample.
19. A transgenic nonhuman vertebrate in which the expression level of a gene encoding Meg-4 is modified.
20. The transgenic nonhuman vertebrate of claim 19, wherein the nonhuman vertebrate is a mouse.
- 15 21. The transgenic nonhuman vertebrate of claim 20, wherein the nonhuman vertebrate is a knockout mouse in which the expression of a gene encoding Meg-4 is inhibited.